

Statement of Work

Item Description		Applicable Contract Function	
1 Sub Task 1 - HGAS Gimbal		Support Services	
Performance Specifications		Delivery Schedule:	
Junior Mechanical Engineer Provide REDACTED junior-level mechanical engineering support for the WFIRST High Gain Antenna System (HGAS) Gimbal. Tasks include component selection; basic structural analysis; interfacing with structural and thermal analysts, machine shops and machinists, quality assurance (QA), and environmental test facility personnel; oversee development of Ground Support Equipment (GSE) hardware; track parts production; maintain flight parts inventory; write test procedures and Work Order Authorizations (WOAs); develop verification test procedures and support testing; and oversee or participate in other typical flight project hardware development tasks. Requirements include: expertise in spaceflight hardware development; documentation of analyses, specifications, WOAs, and ICDs. Familiarity with NASA GSFC and Code 544 is strongly preferred. Deliverables include: documentation of flight parts, documentation of pertinent structural and performance analyses, and documentation of WOAs. Deliverables also include a developed preliminary HGAS Gimbal design by July, 2019. Support can begin as early as March 1, 2019 and shall end February 29, 2020. Budget for two vendor site visits to Durham, NC (3 day trip)		12 Month(s)	
Senior Electro-Mechanical Systems (Mechanisms) Designer Provide a REDACTED senior-level CAD design engineering support for the WFIRST High Gain Antenna System (HGAS) Gimbal. Tasks include flight mechanism design including but not limited to launch locks; mechanical hardware design, interfacing with actuators, assembly, and testing for launch locks, development, integration, and testing of a cable wrap, and integration of a rotary joint waveguide; supporting WFIRST HGAS Actuator flight integration/test/verification activities; monitoring the fabrication and assembly of the hardware. Requirements include fluency in Creo design packages, documentation schematics, specifications, and ICDs in CAD model and drawing files. Deliverables include developing a preliminary HGAS Gimbal model by July, 2019. Support can begin as early as March 1, 2019 and shall end February 29, 2020.		12 Month(s)	
HGAS Gimbal EM & GSE Procurement Support Procure approximately \$20K of EM & GSE components for the HGAS Gimbal, including the cable wrap assembly. Deliverables include procured hardware. Support can begin as early as March 1, 2019 and shall end February 29, 2020.		12 Month(s)	
Item Description		Applicable Contract Function	
2 Sub Task 2 - Gimbal Control Electronics		Support Services	
Performance Specifications		Delivery Schedule:	

<p>Senior Gimbal Control Electronics (GCE) Engineer Provide REDACTED senior-level engineering support for the WFIRST High Gain Antenna System (HGAS) Gimbal Control Electronics (GCE). Tasks include requirements definition; flight mechanisms controller definition and design; card design, assembly, and testing; Board architecture based upon the PACE Mechanism Control Electronics (MCE); supporting WFIRST HGAS Gimbal flight integration, test, & verification activities; performing engineering data acquisition and analysis. Additional tasks include collaborating with mission partners; monitoring the assembly of the GCE printed circuit boards; interfacing the GCE hardware with the HGAS Gimbal(s); supporting requirements verification efforts. Deliverables include developing an EM GCE by July, 2019. Requirements include: familiarity and previous lead experience with the PACE MCE design; printed wiring board (PWB) testing; flight mechanisms controller design; data acquisition/analysis; documentation of test procedures, schematics, specifications, and ICDs. Familiarity with NASA GSFC and Code 544 is strongly preferred. Support can begin as early as March 1, 2019 and shall end February 29, 2020. Budget for two vendor site visits to Durham, NC (3 day trip)</p>	12 Month(s)
<p>Senior Circuit Design Engineer Provide REDACTED senior-level circuit designer engineering support for the WFIRST High Gain Antenna System (HGAS) Gimbal Control Electronics (GCE). Tasks include component selection; circuit design and analysis; schematic production; worst case analysis; voltage, current, and power analyses; and other circuit design related tasks. Requirements include: senior level expertise in spacecraft electronics circuit design and analysis and in the use of circuit analysis CAD software, familiarity and previous experience with the PACE MCE design; documentation of analyses, schematics, specifications, and ICDs. Familiarity with NASA GSFC and Code 544 is strongly preferred. Deliverables include a circuit design with parts list by March 2019 and necessary analyses by June 2019. Support can begin as early as March 1, 2019. Support can begin as early as March 1, 2019 and shall end February 29, 2020. Budget for two vendor site visits to Durham, NC (3 day trip)</p>	12 Month(s)
<p>Senior FPGA Engineer Provide REDACTED senior-level FPGA engineering support to develop firmware for the WFIRST High Gain Antenna System (HGAS) Gimbal Control Electronics (GCE). HGAS GCE FPGA firmware will be reutilized from PACE MCE with modification. Tasks include firmware development; firmware analysis; firmware testing; FPGA firmware review preparation, and other spaceflight FPGA design related tasks. Requirements include: senior level expertise in spacecraft FPGA design and analysis and in the use of FPGA analysis CAD software, familiarity and previous experience with the PACE MCE design; documentation of analyses, schematics, specifications, and ICDs. Familiarity with NASA GSFC and Code 544 is strongly preferred. Deliverables include FPGA firmware for the EM GCE board by July 2019. Support can begin as early as March 1, 2019 and shall end February 29, 2020.</p>	12 Month(s)
<p>Senior EGSE Engineer Provide REDACTED to perform the following: 1. Define specifications for, assemble, and test an</p>	12 Month(s)

<p>electronic ground- support equipment (EGSE) computer rack in support of GCE and HGAS Gimbal testing. 2. Develop ground support software in ASIST for sending commands to and parsing telemetry from GCE and EGSE (1553). 3. Develop ground support software for automatically logging MCE and EGSE telemetry, tracking GCE and Gimbal on-time, and tracking Gimbal cycles/use. 4. Develop automated test procedures and telemetry displays as-needed for MCE and SMM characterization and performance testing. Deliverables include EGSE functionality necessary for EM testing by July 2019. Support can begin as early as March 1, 2019 and shall end February 29, 2020.</p>	
<p>Procure approximately \$115K of HGAS GCE EM & EGSE components. Deliverables consist of the following: 1. (3) bus controllers 2. Rack hardware 3. Misc. EM & EGSE components Support can begin as early as March 1, 2019 and shall end February 29, 2020.</p>	12 Month(s)

Item Description	Applicable Contract Function				
<p>3 Sub Task 3 - Procurement of HGAS Gimbal Actuators</p>	Support Services				
<table> <tr> <th data-bbox="321 867 1084 928">Performance Specifications</th><th data-bbox="1089 867 1300 928">Delivery Schedule:</th></tr> <tr> <td data-bbox="321 934 1084 1297"> <p>Procurement of High Gain Antenna System (HGAS) Gimbal Actuators Provide procurement support to procure ETU and Flight WFIRST HGAS Gimbal Actuators. This procurement needs to be performed in accordance with the WFIRST HGAS Gimbal Actuator Procurement Statement of Work (SOW), Specification, and Deliverable Items List and Schedule (DILS). ATAA will utilize Code 544 and the WFIRST project for technical evaluation and support, unless otherwise directed. Support can begin as early as March 1, 2019. Delivery of Flight HGAS Gimbal Actuators by September 2020. Support can begin as early as March 1, 2019 and shall end as appropriate after delivery of all deliverables.</p> </td><td data-bbox="1089 934 1300 1297">20 Month(s)</td></tr> </table>	Performance Specifications	Delivery Schedule:	<p>Procurement of High Gain Antenna System (HGAS) Gimbal Actuators Provide procurement support to procure ETU and Flight WFIRST HGAS Gimbal Actuators. This procurement needs to be performed in accordance with the WFIRST HGAS Gimbal Actuator Procurement Statement of Work (SOW), Specification, and Deliverable Items List and Schedule (DILS). ATAA will utilize Code 544 and the WFIRST project for technical evaluation and support, unless otherwise directed. Support can begin as early as March 1, 2019. Delivery of Flight HGAS Gimbal Actuators by September 2020. Support can begin as early as March 1, 2019 and shall end as appropriate after delivery of all deliverables.</p>	20 Month(s)	
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